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| APPLICATION NO.        | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------|-------------|----------------------|---------------------|------------------|
| 10/685,306             | 10/14/2003  | Thomas L. Ritzdorf   | 291958117US1        | 9845             |
| 25096                  | 7590        | 05/19/2005           | EXAMINER            |                  |
| PERKINS COIE LLP       |             |                      | SMITH, ZANDRA V     |                  |
| PATENT-SEA             |             |                      | ART UNIT            |                  |
| P.O. BOX 1247          |             |                      | 2877                |                  |
| SEATTLE, WA 98111-1247 |             |                      | PAPER NUMBER        |                  |

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/685,306

Applicant(s)

RITZDORF ET AL.

Examiner

Zandra V. Smith

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10, 13-16 and 27-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13-16 and 27-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1-13-05
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Information Disclosure Statement*

The information disclosure statement filed 03 January 2005 and 29 April 2005 has been entered in the file and the references considered by the examiner.

### *Claim Rejections - 35 USC § 112*

Claims 15-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear which processing tool is being referred to in claims 15-16. Claim 13 includes determining a condition at "one of the [process] tools". There is no way to determine if applicant is referring to the same processing tool.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 7, 9, 13, 27, 32, 35, 36, and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by *Tsai et al. (6,177,780)*.

As to claims 1, 7, 9, 27, 36, Tsai discloses a chemical mechanical polishing method with in-line thickness detection, comprising:

an in-line metrology unit (140) having a space (110, 112, 114) for receiving a microelectronic workpiece for measuring a condition of a first layer after chemical mechanical

Art Unit: 2877

polishing on the workpiece (col. 2, lines 65-68 and col. 4, lines 50-60); a control (part of measurement apparatus 140) connected to the metrology unit; a chemical mechanical polishing process unit (100) with a space for receiving the workpiece and performing an electrochemical process; a transport unit (104) to receive the workpiece from at least one process unit and move it to another process unit; wherein the condition signal influences the process (col. 5, lines 5-55).

As to **claim 2**, Tsai discloses everything claimed, as applied above, in addition a non-compliance unit is provided, the transport unit is signal-connected to the control and the condition signal from the metrology unit influences the control to cause the transport unit to transfer the workpiece to the non-compliance unit (col. 5, lines 40-55).

As to **claim 13**, Tsai discloses a chemical mechanical polishing method with in-line thickness detection, comprising:

providing two processing tools (see fig. 2) for further processing a microelectronic workpiece; using an in-line metrology tool to determine a condition of a layer on the workpiece at one of the tools and in response to a signal from the metrology tool modifying a process parameter in the other tool (col. 5, lines 5-55).

As to **claims 32 and 41**, Tsai discloses everything claimed, as applied above, in addition the metrology unit and electrochemical process unit are housed in a single tool (see fig. 2).

As to **claim 35**, Tsai discloses everything claimed, as applied above, in addition the control signal influences a uniformity with which the conductive material is applied (col. 5, lines 5-55).

Claims 13-16 are rejected under 35 U.S.C. 102(e) as being anticipated by *Akimoto et al* (6,004,047).

Art Unit: 2877

As to **claim 13**, Akimoto discloses a system for processing photoresist, method for evaluating photoresist films and processing apparatus comprising:

providing two processing tool (see fig. 1) each of which further processes a microelectronic workpiece in a preselected process (col. 16, lines 15-20);

using an in-line metrology unit (18) to deterring a condition of a layer on the workpiece at one of the tools; and

in response to a signal from the metrology unit modifying a process parameter (col. 7, line 58-col. 8, line 12).

As to **claim 14**, Akimoto discloses everything claimed, as applied above, in addition a third processing tool is provided and parameters are modified in the third processing unit (col. 7, line 58-col. 8, line 12).

As to **claims 15-16**, Akimoto discloses everything claimed, as applied above, in addition the workpiece is processed in one and then another processing tool (col. 7, line 58-col. 8, line 12).

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 27, 29-33, 35-36, and 38-42 are rejected under 35 U.S.C. 102(b) as being anticipated by *Mayer et al. (5,096,550)*.

As to **claims 27, 35-36**, Mayer discloses a method and apparatus for spatially uniform electropolishing and electrolytic etching, comprising:

a metrology unit (42) to receiving a microelectronic workpiece, the metrology unit measuring a condition of a least one conductive layer of the workpiece;

Art Unit: 2877

an electrochemical processing unit having a space to receive the workpiece and to apply a conductive material to the at least one conductive layer; and

a control unit coupled to the metrology unit and the electrochemical process unit to receive a condition signal, that influences uniformity of the application of the conductive material, from the metrology unit and to transmit a control signal that influences the manner in which the conductive material is applied (col. 6, lines 17-54).

As to **claim 29-30 and 38-39**, Mayer discloses everything claimed, as applied above, in addition a deposition unit applies the conductive layer external to the device (col. 6, lines 17-54).

As to **claims 31 and 40**, Mayer discloses everything claimed, as applied above, in addition a plurality of electrodes is provided and the control unit controls the electrodes (col. 4, lines 54-60).

As to **claims 32-33 and 41-42**, Mayer discloses everything claimed, as applied above, in addition the metrology unit and electrochemical processing unit are virtually coupled in a single tool (see fig. 1a).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Mayer et al.* (5,096,550).

Art Unit: 2877

As to **claim 34**, Mayer discloses everything claimed, as applied above, with the exception the metrology unit and electrochemical processing unit being housed in separate tools, however since Mayer uses optical fibers for the test (col. 6, lines 17-54), it would have been obvious to one having ordinary skill in the art at the time of invention to have the devices in separate tools as a means to reduce the bulk of the processing tool.

### *Double Patenting*

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-10, 13-16, and 27-42 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 6,428,673. Although the conflicting claims are not identical, they are not patentably distinct from each other because '673 provides a metrology unit having a space for receiving a microelectronic workpiece for measuring a condition of a first layer on the workpiece, a control unit connected to the metrology unit, multiple process tools process unit with a space to perform an electrochemical process on the workpiece and the condition signal from the control unit is used to influence the process (claims 1 and 7). In addition, '673 provides a seed layer

Art Unit: 2877

enhancement unit, measurement of a seed layer thickness, a chemical mechanical polishing tool, and determining the condition of a conductive layer on the workpiece..

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

***Stanke et al. (US 6,690,473 B1)*** disclose an integrated surface metrology unit that includes process a workpiece and using measurement to control the process.

***Wang (US 6,391,166 B1)*** discloses a plating apparatus and method that includes a thickness monitor for a seed layer.

### ***Fax/Telephone Information***

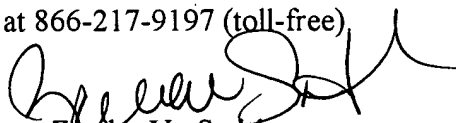
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zandra V. Smith whose telephone number is (571) 272-2429. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Art Unit: 2877

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)



Zandra V. Smith  
Primary Examiner  
Art Unit 2877

May 16, 2005